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Fundamental to evaluating the effectiveness of teacher education is determining whether the theory and practice of preservice training carry over into inservice teaching. Considering the large number of beginning teachers who soon drop out of teaching, it appears that they do not. Possibly teacher educators have put too much reliance on the concept of transfer. A review of the literature reveals that transfer may not be the sole factor in the learning process; only in earlier studies of transfer are individual differences accounted for, usually by recognizing intelligence as a major determinant in the transfer process. The success of a beginning teacher may be due to his personal adaptability to the principal, the pupils, the setting, and the role expectations he must face in his teaching assignment rather than to any similarity between his student teaching practice and his first teaching situation. Consequently, "it seems . . . that teacher education will be better served by seeking to learn more ways of developing elements within individuals rather than trying to reconstruct identical situational elements between preservice and in-service experiences." The task of teacher educators is to stimulate professional commitment in their students by serving as models of good teaching practice, with the laboratory experience serving to mold individual students' perceptions of the teaching profession. (SG)

THE CONCEPT OF TRANSFER AND THE PREPARATION OF TEACHERS

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THE CONCEPT OF TRANSFER AND THE PREPARATION OF TEACHERS*

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The first purpose of teacher education programs is to prepare effective beginning teachers. Many preservice students successfully complete teacher education curricula, if grades can be used as a criterion of success, but never accept an initial assignment. Many others do begin but leave the profession during or soon after their first year of regular teaching. The average length of service of a beginning teacher in Wisconsin is 1.3 years, and even this brief period is longer than in many other states--particularly states with great, overlapping urban areas. If we assume that large numbers of these professional dropouts would be poor teachers anyway, we do them an injustice. A more plausible assumption is that many teacher education programs lack appropriateness: they do not adequately bridge the gap between preparation and practice.

This is not to raise the tired issue of the dichotomy between theory and practice, since most preservice programs incorporate a variety of professional laboratory experiences to help students derive meaning from their more theoretical studies. The problem is the degree to which the theory and practice of preservice experiences is adapted and utilized as the theory and practice of the in-service teaching performance. At the heart of this problem is the reliance which teacher educators place on the concept of transfer. Because of the current emphasis on improving teacher education it seems important to reevaluate the relevance of this concept as a basic guideline in the preparation of teachers.

Teaching in general, and the preparation of teachers in particular, has been markedly influenced by implications drawn from the field of psychology. This domination has been encouraged by professional educators acting on the basis of two assumptions: (1) that a single behavioral science can explain and predict human behavior, and (2) that the particular discipline of psychology is the single most appropriate frame of reference for studying and practicing the process of teaching. As a result of the need to prepare more beginning teachers who can be successful in urban areas, teacher educators are now turning more frequently to such fields as anthropology, sociology, economics, and political science, in an attempt to develop a more-balanced, eclectic approach to the study of education.

In order to illustrate the single-mindedness of much of our past orientation, let us briefly consider some alternatives. If, for example, the field of sociology rather than psychology had dominated the study of education for the past half-century, several different trends would now be evident. Rather than studying about how people learn, we would be studying how they are socialized. Rather than evaluating individual human potential on the basis of I.Q. examinations which measure particular kinds of qualities, human ability would be assessed in terms of the individual's propensity to empathize with persons in roles different from his own. Rather than studying the child and

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reaching generalizations about his growth patterns at various stages of life, future teachers would be concentrating on studying the ethnic group and social class backgrounds of youngsters. Rather than evaluating children and youth on the basis of how much new knowledge and skill they have individually achieved, students would be evaluated on the basis of whether they have clarified new values and adapted to new roles. Rather than trying to specify the personal characteristics of teachers as a way of selecting and predicting preservice students' future success, educational researchers would be studying the needs-press of the setting into which beginning teachers are placed. Rather than adapting the tools of research and experimentation derived from a discipline which assumes controlled variables, experimenters would be utilizing the methodology of the participant observer and the cross-cultural comparison.

The study of education would not necessarily be further advanced if it had been more susceptible to sociological rather than psychological approaches. In fact, we will always be vulnerable to a host of new kinds of errors and misemphases, if we assume any single social science to be <u>the</u> approach to the study of human behavior.

In order to clarify and specify this argument it would be helpful to consider the concept of transfer as it has been applied to teacher education, since this concept is at the heart of the rationale which explains the heavy emphasis on professional laboratory experiences in the preparation of teachers. We assume that what is offered to the student will become useful as it is transferred by him from the practice situation to his first regular assignment. The student's coursework is intended to help him derive meaning from professional laboratory experienceswhich, in turn, are intended to help him develop the insights, behaviors and attitudes which will carry over to his future teaching.

Many professional programs are anchored to the concept of transfer. But few such programs are criticized as persistently as is teacher education on failure to accomplish transfer of training adequately. Teacher education programs are constantly being judged by outsiders on the basis of the professional service. This is as it should be; however, the basic assumption underlying much of this evaluation is a belief in the validity of applying the concept of transfer as it has been developed in the field of psychology, to the process of preparing teachers.

The discussion which follows will attempt to briefly review the research which supports the concept of transfer, cite some of the common generalizations derived from this research, discuss the appropriateness of this concept to the process of preparing teachers, and suggest some alternative ways in which teacher educators might view the relationship between preparation and practice.

<u>The Literature on Transfer</u>

The goal of instruction is to change students' habit of thinking, speaking, acting and feeling for the purpose of affecting changes in their adult lives. Essentially, all teaching and schooling makes some assumptions about the process of transfer. Even the liberal arts course which is justified for "its own sake" is frequently rationalized as having liberalizing influences on the mind and spirit of the student. Often, particular subjects are regarded

as being so basic that they have residual transfer; for example, the popular art of one century may become the written language symbols of a subsequent period.

Basically, the educational psychologist defines the practice of assessing students in situation B after they have been offered learning experiences in situation A as involving the process of transfer. On the basis of this definition all learning is considered to be a demonstration of transfer. But what evidence do we really have that there is such a thing as transfer? And, to what extent are we justified in basing complex educational programs on this process? Should any limitations be placed on the implications derived from the studies which support this concept? The following is a brief review of some of the basic thinking and research which has led to the present formulation of the concept.

When E. L. Thorndike and R. S. Woodworth made their significant additions to the concept of distributing practice between subsequent situations, they coined the phrase "identical elements" which was later defined more specifically as identical elements of substance in two situations (content), and identical elements of procedure (method).[1/] Although the research literature includes many more studies on the identical elements of content, there has always been some effort to study the more difficult task of transferring methods of learning. The initial work in this area focused on situational elements which did not transfer. During the 1920's Broyler, Thorndike and Woodyard showed that the study of selected school subjects does not increase intelligence, but that intelligent students tend to take selected school subjects.[2/] Wesman replicated this study with similar results two decades later.[3/] Many similar studies were carried out in relation to specific school subjects, particularly Latin, mathematics, science, spelling and grammar. Occasionally, a study indicated that success in, or even exposure to, certain school subjects did transfer to other subjects, but inevitably more evidence was produced to substantiate the lack of carry-over between situations that lacked identical elements. Two examples might serve to give the flavor of this kind of research.

In the field of science some recent investigators have concluded that even when science is taught as straight subject matter it will increase the student's ability to use science concepts and facts in a functional way.[4/]

1/ E. L. Thorndike. The Principles of Teaching. New York: A. G. Seiler, 1906. p. 244.

2/ C. L. Broyer, E. L. Thorndike, E. Woodyard. "A Second Study of Mental Discipline in High Schools," Journal of Educational Psychology, 18:377-404, 1927.

3/ A. G. Wesman, "A Study of Transfer from High School Subjects to Intelligence," Journal of Educational Research, 39:254-264, 1945.

4/ O. E. Smith and M. D. Glock, "Measuring Knowledge and Application: An Experimental Investigation," Journal of Experimental Investigation, 21:327-331, 1953.

For over forty years, however, more evidence has accumulated to indicate the contrary: that there is little carryover between success in the study of high school subjects and students' subsequent achievements. Students who did not take high school chemistry did as well as those who had in later college study, and students who had no general science in high school did as well as those who had, in their college study of physics, biology and chemistry.[5]

In the field of mathematics it swas demonstrated that geometry, when specially taught, brought about increased ability to think logically about selected materials in other fields, and that students who took mathematics in high school seemed to perform better in college mathematics.[6] As in the case of science, however, more evidence exists to demonstrate that there is little transfer from geometry classes to the ability to reason in general.[7] Essentially, all these studies, regardless of the sides of the issue they take, can be used to support Thorndike's original explanation that identical elements within situations are the qualities which transfer. It is also remarkable to note the number of studies which ignore the caution in the early literature against attributing the power to transfer to specific subject matter rather than to intelligent students.

In spite of the large number of studies similar to those cited in relation to science and mathematics, the overwhelming attention of the researchers has been devoted to very specific, delimited attempts to assess the carryover of identical elements of content. Much has been done in areas which combine some form of motor skill with related factors of intelligence. For example, the task of crossing out all the "e's" on a page will enable a person to positively transfer this skill to letters that resemble "e" and to negatively transfer to crossing out letters that are unlike "e."[8] In other studies, the ability to read Braille with one finger has been shown to transfer readily to developing this skill in other fingers, just as the ability to judge one distance has been shown to be helpful in estimating other distances.[9] Similarly, it has been discovered that the ability to juggle balls will transfer from one hand to another, especially if one hand learns in a clockwise motion and the other moves in a counterclockwise direction.[10] There is little doubt or disagreement in these studies unless some attempt is made to make tasks more complex or to reach a judgement regarding the sequence of tranfer.

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[5] S. R. Powers, "The Achievement of High School and Freshman College Students in Chemistry," School Science and Mathmatics, 21:366-377, 1921.

[6] L. Hartung, "Teaching of Mathematics in Senior High School and College," Review of Educational Research, 12:425-434, 1942.

[7] G. Ulmer, "Teaching Geometry to Cultivate Reflective Thinking," Journal of Experimental Education, 8:18-25, 1939.

[8] J. A. McGeoch and A. L. Irien. The Psychology of Human Learning. New York: Longmans, 1952. p. 310.

[9] E. J. Gibson, "Improvement in Perceptual Judgments as a Function of Controlled Practice in Training," Psychological Bulletin, 50:401-431, 1953.
E. J. Gibson and R. Bergman, "The Effect of Training on Absolute Discrimination of Distance over the Ground," Journal of Experimental Psychology, 48: 473-482, 1954.

[10] R. S. Woodworth and H. Schlossberg. Experimental Psychology. New York: Holt and Co., 1954. pp. 738-743.

The problem of complexity can be seen in a study which demonstrates that a compound task can be learned by mastering its parts. For example, subjects transfer their ability to predifferentiate their responses to lights and to pushing levers, to the complete task of pushing levers in response to lights.[11] On the other hand, studies in driver education reveal that complex tasks are better practiced in totality than as components.[12] This issue is "settled" by studies which point to a middle ground; if one can practice only the components of a complex task, it is most effective to select the most critical component.[13] Isolating the most critical single component, however, is usually left to other researchers.

The issue of sequence in the process of transfer has also produced some conflict and a middle position. Supporting the idea of meaningfulness, some research demonstrates that memorization which moves from poetry to nonsense syllables has greater transfer than following an opposite pattern.[14] Some researchers have produced evidence that transfer is greater in moving from hard tasks to easy ones,[15] others have taken the opposite point of view,[16] and a third group have shown that there is no real difference between either progression.[17] In an effort to resolve this contradictory evidence most psychologists invoke a theoretical explanation which is in line with their particular orientation. The explanation that in order to maximize tranfer it is critical for the student to have success experiences regardless of whether he is moving from easy to hard or hard to easy, is an example of the use of such supporting theory.[18]

Different schools within the field of psychology have added to the complexity of the problem by placing different interpretations on the same research evidence. In the famous study by Judd, replicated thirty years later, it was demonstrated that learning a principle will transfer more really than learning unconnected behaviors. In these studies, subjects who attempted to

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[11] M. D. Arnoult, "Stimulus Pre-Differentiation: Some Generalizations and Hypotheses," Psychological Bulletin, 54:339-350, 1957.

[12] G. E. Briggs and W. J. Brogden, "The Effect of Component Practice on Performance of a Lever Positioning Skill," Journal of Educational Psychology, 48:375-380, 1954.

[13] G. A. Eckstrand and D. D. Wickens, "Transfer of Perceptual Set," Journal of Experimental Psychology, 47:274-278, 1954.

[14] Woodworth and Schlossberg, op. cit. p. 745

[15] F. H. Kresse and others, "Multiple Response Transfer As a Function of Supplementary Training with Verbal Schematic Aids," Journal of Experimental Psychology, 48:381-390, 1954.

[16] R. A. Baker and S. W. Osgood, "Discrimination Transfer Along a Pitch Continuum," Journal of Experimental Psychology, 47:241-246, 1954.

[17] R. F. Green, "Transfer of Skill on a Following Tracking Task as a Function of Difficulty," Journal of Psychology, 39:355-370, 1955.

[18] J. M. Stephens, "Transfer of Learning," Encyclopedia of Educational Research, New York: MacMillan Co., 1960. p. 1539.

hit a submerged target with an arrow did better after learning the principle of refraction than subjects who were not taught this principle.[19] Recently, however, in a comparable study utilizing card tricks, it was demonstrated that conceptual aids had little advantage over rote practice.[20] The essence of this difference in results can be seen in the interpretations of a psychologist who takes the field generalization approach as opposed to a colleague who explains behavior in terms of series of S-R response.[21] This difference is a crucial one, since conflicting results from studies such as Hendrickson and Hilgarde deal with what Thorndike called identical elements of procedure and these have broader implications for the practice of education than conflicts about the nature of identical elements of content.

A basic study in the area of transferring methods of learning was carried out in 1947 and like much of the previous research was focused on the study of mathematics.[22] The problem studied was, "To what extent, if any, does the way in which one learns a generalization affect the probability of his recognizing a chance to use it?" This study concluded that greatest power attended an unverbalized awareness method of learning, as opposed to a tell and do method. It further demonstrated that verbalizing a generalization immediately after discovery not only does not increase generalizability, it may actually decrease transfer power. Numerous other studies can be cited to substantiate these findings.[23] It is important to note that although all of these studies deal with learning methods of transfer, they tend to cluster in the study of very specific aspects within the content field of mathematics.[24]

The final category of studies related to the concept of transfer which has obvious implication for the teacher educator, also relates to the transfer

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[19] C. H. Judd, "The Relation of Special Training to General Intelligence," Educational Review, 36:28-42, 1908.

G. Hendrickson and W. A. Schroeder, "Transfer of Training in Learning to Hit a Submerged Target," Journal of Educational Psychology, 32:205-223, 1941.

[20] E. R. Hilgarde and Others, "Errors in Transfer Following Learning with Understanding...," Journal of Experimental Psychology, 47:457-464, 1954.

[21] Stephens. op. cit. p. 1540.

[22] G. Hendrix, "A New Clue to Transfer of Training," Elementary School Journal, 48:197-208, 1947.

[23] P. G. Symonds. What Education Has to Learn From Psychology. New York: Bureau of Publications, Teachers College, Columbia University, 1959. p. 88.

[24] K. B. Henderson, "Research on Teaching Secondary School Mathematics," Handbook on Research in Teaching, Published by AERA, 1963. p. 1015.

of elements of procedure and focuses on the process of learning to learn. One researcher has demonstrated that the greater proficiency and completeness with which human subjects learn a set of nonsense syllables results in increased ability to replicate similar tasks in fewer and fewer trials.[25]

In the field of non-human experimentation there is an accumulation of similar evidence. Among other things, it has been demonstrated that after discriminating between two stimuli, monkeys learn to be more systematic and business-like and as a result become more proficient in later trials of a similar nature. Animals learn to learn if their tasks are learned to completion.[26]

In summary, the literature on transfer is impressive. It covers a wide range of content--from juggling balls and pitching soiled cards into hats to attempts at assessing the transfer of methods of learning. Reviewers of this literature have concluded that the overwhelming effort has been concentrated in the content realm, i.e. learning something in one situation to use somewhere else, with an insufficient effort devoted to studying the tranfer of procedures of learning.[27]

On the basis of the evidence gathered under the broad heading of transfer, several generalizations have become quite common. These have been used as the basis for much curriculum planning in the field of education. Examples of these generalizations will be considered in the discussion which follows.

Implications of the Literature on Transfer

Some of the most common generalizations based on the studies of transfer can be summarized as: teaching for transfer, helping the learner see purpose, offering a variety of examples, providing opportunities for practice and offering experiences for practicing the process of transfer itself. Although each of these generalizations can be substantiated by some research, they are all tenuous principles derived from arbitrarily categorizing a wide range of studies which vary in content and quality.

1. Teaching for transfer is intended to convey the idea that teaching, which has specified purposes of a behavioral nature, has the greatest potential for transfer; that instruction should emphasize the things to be transferred as much as possible. The admonition, "Don't teach one thing and hope for the transfer of something else," is a derivation of this generalization.

2. Helping the learner see purpose is a generalization based on the studies which indicate that transfer is increased when the thing to be transferred is a generalization that means something to the learner, a

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[25] McGeoch and Irien. op. cit.

[26] H. F. Harlow and J. M. Warren, "Formation and Transfer of Discrimination Learning Sets," Journal of Comparative Physiological Psychology, 45:482-489, 1952.

[27] P. G. Symonds. op. cit. p. 78.

conscious insight, or a rule that can be understood. The implementation of this principle leads to the practice of having students develop the generalizations to be transferred on the assumption that students will tend to understand and see purpose in their own formulations more readily than in the generalizations handed out by the teacher.

3. Providing numerous examples and experiences is a basic means for accomplishing the preceding generalizations. By offering the student a wide variety of opportunities he will have the experiential material to develop his own generalizations. "If you want the student to generalize give him many examples," is an established maxim of teaching. This generalization has been applied by teachers in all content areas, in very specific and in very broad ways. If, for example, the concept of rhythm is to be transferred most effectively, the student must be offered examples of this concept in a variety of fields (e.g., poetry, dance, physics, anatomy) and helped to develop his own generalization.

4. Providing opportunities for practice is another recurrent generalization. Rather than placing all the responsibility on the student for making the transfers, the effective teacher offers numerous examples of how he would utilize ideas or behaviors in other context and then allows students opportunities to practice making their own applicatinns. The physics instructor uses sailing to illustrate some aspects of the study of vectors and then provides opportunities for his students to practice such transfer.

5. Learning to transfer is itself an ability which can be taught. By rewarding students who successfully transfer and by providing opportunities for students to experience frequent and recurrent success, it is possible to develop transfer-sensitive students.

Since these five and other generalizations have helped teachers to be more effective, they have become common in the literature on teaching methodology. It seems to me, however, that these five generalizations as applied in most teaching situations work successfully for reasons other than the fact that they are based on the process called transfer. It seems quite reasonable to assume that there is another concept called A, or several concepts called X^1, X^2, X^3, which might help us to explain, as well or better than the concept of transfer, why the above five generalizations are operatively true. To make the assumption that what we have called transfer is the only way to explain these generalizations is to make an impossible inferential leap from a body of very specific studies, quite removed from the process of teaching. In other words, the studies on transfer, according to their own rules and definitions, can not transfer to the very different educational situations (composed as they are of dissimilar elements) to which we have attempted to apply them. In essence, experiential evidence about what most good teachers do and not the research literature on transfer, makes generalizations such as the foregoing valid.

Application of the Concept of Transfer to the Preparation of Teachers

The overview of the literature presented previously is not intended to serve as a comprehensive summary of the research literature on the transfer training: it is, however, presented as a representative selection of the kinds of studies which have led to the establishment of this process as a working

principle in the field of psychology. The critical question facing professional educators is the appropriateness of utilizing this concept in the process of developing teacher education curricula. Before considering the question of appropriateness, it may be helpful to describe some of the outstanding characteristics or elements of the beginning teacher's first assignment, since this is the situation to which the individual who has prepared to teach must successfully "transfer" what he has learned as a preservice student.

The impact of the situation on the newly assigned beginning teacher can best be analyzed in terms of the interplay among several divergent elements. These are the principal, the pupils, the setting, and the role expectations incumbent on a new teacher.

Of all of the possible influences which affect the success of a beginner, none is cited as frequently and with such emphases as the leadership of the building principal. Regardless of whether the school serves a rural area or a densely populated slum, the principal remains the single most potent influence in determining the effectiveness of the total school program. He can dominate his teachers or free them to be creative; raise morale or destroy commitment; create an atmosphere of freedom or inject endless tensions into the climate of the school. He is instrumental in building confidence or arousing fear among the teachers with whom he works. But what can a preservice student learn about the principal of the school where he is a student or intern teacher which will "transfer" to the individual who is principal of the school where he will begin as a regular teacher? Are there generalizations about principals which guide others in working with them or are principals subject to the same individual personality differences as other people? Aside from trivial generalizations or statements which are so broad they give little real guidance, the beginning teacher must establish a professional relationship with each new principal with whom he works; and he must do this with great care and in some detail. Because of the nature of studies supporting the concept of transfer serious questions must be raised about the appropriateness of applying such a concept to the problem faced by a beginning teacher learning to work with his first principal.

The second element in the situation faced by the beginning teacher is children. The children with whom the preservice student learns to teach will be different from those to whom he is subsequently assigned in several significant ways: they may be older or younger; they may be of a different ethnic background; they may be brighter or slower; they may be suburban or urban; they may be a markedly different proportion of girls and boys; they may have different backgrounds of experiences, interests, and aspirations. If good teaching is based on working with individual pupils, then only the generalization related to the overall process of individualization is capable of "transfer." The actual methods and content for achieving this individualization will have to vary in response to the pupil difference cited above. Many teachers have demonstrated the ability to teach complex subject matter effectively to different children and youth. What evidence in the research literature enables us to describe these sequential teacher successes as "transfer" rather than the work of able teachers who can learn unlike things well? As Thorndike pointed out in his 1924 study, it was the ability of the students, not the inherent value of the subject matter, which made it appear as if a process like transfer had occurred.[28]

28/E. L. Thorndike, "Mental Discipline in High School Studies," Journal of Educational Psychology, 15:83-98, 1924.

The third critical element affecting the beginning teacher's success is the context or the setting in which he operates. The variations among schools serving differnt communities and neighborhoods are thoroughly documented.[29] More specificially, however, there is often a great divergence between schools serving the same neighborhood. As a result of the principal's leadership and other factors, one school may have higher teacher turnover, lower student achievement, and a more frequent incidence of vandalism. But even more, there is an "up feeling" about some schools which, although it cannot be specified enough to measure, exists as surely as the aura that inhabits a palace or pervades a cemetery. Our inability to scientifically describe and assess school climate requires new technical refinements in the field of measurement, as well as a greater theoretical specification of what elements make up this school phenomenon called setting. The building, the non-professional staff, the neighborhood, the parents, the professional personnel, the materials and equipment, the children, and all the other elements that characterize a setting, combine to give one the "feel of the school." All of these things determine the affective tone with which teachers, children and others enter the building and perform their responsibilities. Aside from broad generalizations which can be essayed about the existence or features of all settings, the beginning teacher must come to terms with the particular setting in which he will practice. The setting which he was a student or intern teacher may not only be non-transferable, but a hindrance to his understanding and acceptance of present surroundings. What is the relationship between the research literature on transfer and the beginner's need to adapt to a new setting?

The final element, the demands of behaving in the role of teacher, is probably the most markedly different for the preservice and in-service teacher. No undergraduate or intern program presently extant has successfully bridged the notable gap between student-intern and regular teacher. In addition to the obvious and extreme differences in responsibility and remuneration, the beginning teacher is often subject to a host of new expectancies and demands. A new principal, different students, and a new setting, combine to place the powerful pressure of newness on most beginners. The status of college student, which is one in which students are offered much practice in behaving deferentially, must quite suddenly give way to the status of professional decision-maker. In almost no time (often the summer period between June and September and sometime a weekend in January or February) the same person who has been conditioned to raise questions is forced into the position of having answers. As if these changes were not in themselve revolutionary, consider the added impact of a change in marital status and a change in place of residence which so often occur at the same point in time. What studies in the literature on transfer would make this concept an appropriate conceptual tool for understanding such complex and dramatic changes in role?

Suppose, for the fun of imagining, that what we have been implying is true, that there is no real basis for thinking of the transfer as a valid concept for teacher education. What kind of rationale could fill this void

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29/ P. C. Sexton. Education and Income. New York: Viking Press, 1961

and undergird the development of teacher education curricula? The discussion which follows will include some tentative suggestions.

Some Possible Directions

After studying the research literature on transfer in depth, J. M. Stephens concluded, "The thing to be transferred from one experience to another could be a fact, a method, a general principle, an attitude, or a way of life."[30] Unfortunately, this statement is not supported by the research. As Stephens' statement moves from the most specific ("facts"), to the most pervasive ("a way of life"), the concept of transfer becomes less provable. The evidence is strong that selected facts and generalizations, usually of a skill or motor type and drawn from selected disciplines (e.g., mathematics, physical education), will transfer. On the basis of the evidence, however, the development of total educational programs which attempt to go beyond this level of fact and generalization is unwarranted. There is not only insufficient evidence upon which to conclude that generalizations, attitudes or ways of life will transfer, there is impressive evidence to the contrary.[31]

But if there is no such thing as transfer, of what value is schooling? Isn't the basic justification of instruction the promise of transfer? If these questions seem reasonable, then our preceding argument has not been clearly stated. There has been no attempt to take a position against the subsequent use of one's education or the generalizability of knowledge and emotions. Neither have we intedned to deprecate the value of the concept of transfer or the research on which it is based; it has great validity in the field of psychology. We are instead suggesting the possibility that if teacher educators lay aside the coneept of transfer and substitute other tentative formulations, they might experience a greater degree of success in developing teacher education curricula which produce more effective beginning teachers.

The most elementary idea that became obvious from a reading of the research literature on transfer is that several hundred psychologists, over a period of four decades have been searching for identical elements in content, skills and situations. A whole field, ostensibly devoted to explaining individual behavior, has been seeking identical elements in the external situation rather than within the person. Although the tacit implication is always present that the individual is an intervening variable between situations A and B, there is no assumption that different personalities will transfer selectively. In large measure, the individual in this research is regarded as a constant. The identical elements in the situation to be transferred have been assumed to have greater power than any element of personality. The only conflict that seems to arise is between those who believe that this constant (the person) is transferring by the process of making new S-R connections, or by some process of field generalization. We must return to the earliest studies to find any recognition of individual differences that is accounted for by the research design, and this is usually a recognition of some factor of intelligence as a

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[30] J. M. Stephens. op. cit. p. 1542.

[31] N. Sanford. The American College. New York: Wiley & Sons, 1962. Section VII. "The Effects of College Education."

major determinant in the process of transfer. It seems to me, therefore, that teacher education will be better served by seeking to learn more ways of developing elements within individuals rather than trying to reconstruct identical situational elements between preservice and in-service experiences. If this assumption is true, reliance by teacher educators on the concept of transfer should be abandoned and experiences which influence critical elements within personalities should be sought. Following is one example of what this change in dependence on the concept of transfer would involve.

Teacher education programs have for years attempted to make the training experiences most like the student's first regular teaching assignment. The culmination of this process is the preparation of students in the very same school to which they would be assigned as beginning teachers. When Hunter College utilized this procedure their students demonstrated remarkable success in very difficult situations. The literature on transfer would explain this phenomenon by pointing to the concept of identical elements. Since a student teacher learns to work with the building principal and the students, and to carry out his role in the very same situation in which he is expected to perform as a beginner, there is a maximization of identical elements and hence a greater liklihood that the process of transfer will occur. Although this explanation has strong appeal it should be rejected for the basis reason cited earlier. It underestimates the importance of understanding the impact of the situation on the individual in favor of seeking common elements in the situation itself. The reason for the success of the Hunter College program should not be sought in the process of transfer but in the commitment and enthusiasm developed in students who volunteered for the program.

A wide variety of new teacher education curricula seem to be experiencing success for this same reason.[32] If the process by which students become enthusiastically committed to the causes of education were to be studied in future, with the same intensity that the concept of transfer has been studied in the past, teacher educators would have a firmer rationale to guide their program development. If the preservice student is to intensify his commitment to principles and to increase his enthusiastic participation, we need to learn more about college students and the process of influencing them in significant ways.

College students clearly spend much more time studying instructors than college faculty spend considering the process of college teaching. In a recent nationally circulated newspaper article, the following key questions were raised to help college students:

--What part of the course does the instructor like best?
--Does he like argument in the classroom?
--Does he like pop quizzes?
--Does he have good and bad days?
--Try and make a private appointment![33]

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[32] E. B. Smith and P. Johnson. School-College Relationship in Teacher Education. Published by AACTE, Washington, D. C., 1964.

[33] Newspaper Enterprise Association, "Teachers: Best to Join 'Em,'" 30 Days to Better Grades. Milwaukee Journal, September 15, 1964, Part I.

If college instructors were engaging in introspective, controlled, planned, professional teaching behaviors, would their students be raising such questions? If the goal of college programs and the objective of college instructors was to help develop commitment to principles and enthusiastic involvement, would students be forced to study the art of making grades?

The task of affecting student commitment is not one which requires that the college program begin de novo. On the contrary, students come with a need to find personal meaning and to give their lives social purpose. The Peace Corps, the Freedomriders, even the rioters, are just some of the examples of students seeking meaningful activities beyond their formal coursework. The task of the college program is not to initiate commitments and enthusiasm in vacuous students, but to remove the obstacles which prevent students from naturally and fully developing their own predispositions and talents.

The process of instruction in the total college program is an especially sensitive area since it has potentially great influence on preservice students and through them, on children and youth. Future studies would be most fruitful if they concerned themselves with the process of developing commitment among future teachers. Some examples of the process by which we need to learn more about include the following teacher behaviors:

Listening. By paying attention to, remembering, and using students' ideas, teacher educators can help them to clarify their thinking and their values. This elementary procedure is a fundamental part of good teaching at any level.

Being a Personal Model. Students are influenced by the people with whom they come into contact, the people who give ideas life. Yet, faculty members' attitudes on controversial issues seem far less influential on their students than their actual behavior. For example, does the faculty member himself work hard, keep long hours, care about his job, read a great deal, demonstrate high standards in meeting his own professional responsibilities, do research, try to set individual standards in working with students and above all, seek to evaluate himself?

Working with the Setting. Students seem to be affected by the total environment of the college. If they are physically confined in certain areas, or in their access to facilities and people, and if they are limited in the choices offered them, they might respond by feeling less personally involved. The setting should free the student to develop strong loyalties to particular ideas and groups.

Believing in Students. A major goal of college instruction is to foster the belief that they (the students) can make a difference by their participation. There is little hope that one will join a cause in a wholehearted manner if he suspects that his activity will have no appreciable effect. This dimension is clearly demonstrated by those movements which have successful adherents in college settings among students of college age.

Admittedly, the above areas are broad, vauge and do not lend themselves to the usual kinds of research study. The process of transfer, with its sub-concepts of identical elements of content and identical elements of procedure is a much neater formulation to research and to utilize in the

development of teacher education curricula. The issue raised in this paper will be resolved by deciding whether the most important "stuff" of professional preparation is more readily found in the situation or in the person who is a preservice student; and whether the individual's ability to recognize identical elements in subsequent situations, or the consistency of his own commitments, is a more powerful factor for predicting individual behavior.

Teacher educators can move in the direction of constructing particularistic programs in which professional laboratory experiences are made most like the first regular teaching assignment, or toward research and development in ways of freeing preservice students to develop their values and express their enthusiasms. If we emphasize the former process (transfer), we will continue to tinker with peripheral concerns which exist largely outside of the individuals who are to be affected; if we focus on the latter process (the development of commitment) we will use professional laboratory experiences as <u>one basic means</u> for achieving the more difficult but pervasive goal of changing preservice students' perceptions.

Anatole France is credited with stating: "I prefer the errors of enthusiasm to the indifference of wisdom." Perhaps the development of commitment in place of the ability to "transfer" will lead more students to make "errors of enthusiasm."